USDA United States Department of Agriculture | Forest Service | Redbird Ranger District | 91 Peabody Road Big Creek, KY 40914 606-598-2192

File Code: 1950
Date: June 22, 2010

Dear Sir or Madam:

I am proposing a series of vegetation management activities to diversify wildlife habitat, improve forest health by reducing competition, increase hard mast production, and provide forest products for public use. The proposed activities would help move National Forest System (NFS) lands in this area of the Redbird Ranger District towards desired conditions, as described in the 2004 *Land and Resource Management Plan for the Daniel Boone National Forest, as amended August 2008* (Forest Plan).

This is one opportunity for you to review and comment on the **Spring Creek Vegetation Management Project**. Comments will be used to help focus the scope of environmental analysis. **Comments need to be submitted by July 16, 2010**.

LOCATION

This proposal is located near Spring Creek in Clay County, KY. Spring Creek is a small tributary of the Red Bird River, and is located west of Kentucky State Highway 66 and south of Kentucky State Highway 2000 (Vicinity Map 1).

The project area is predominantly forested (i.e. ≥70%) with red oak, white oak, hickory and yellow-poplar, and forest condition[1] is dependent on site location. Forested stands on northeast facing-slopes are generally characterized by a rich growing environment, increased shade and subsequent abundance of vegetation, due in part to the diffuse light received as the sun moves across the sky. Forest stands on southwest-facing slopes are characterized by drier, less rich growing conditions. The forest condition in the project area is predominantly mature trees (≥ 6 inches diameter). The average density of overstory forest for the proposed action areas is approximately 80 square feet of basal area[2], with an average height of 77 feet and an average diameter of 17.8 inches at breast height. Snags are generally more abundant on ridgetops and southwest facing slopes. Understory consists of beech, red maple, sourwood, sassafras, huckleberries, and mountain laurel on drier sites.

Land ownership, though largely NFS lands, is interspersed with private in-holdings. Land use along the privately owned portion of the Spring Creek watershed includes residential dwellings, subsistence farming, timber harvest, and mineral extraction (e.g. natural gas, oil, coal). Land use on NFS land in and around the Spring Creek watershed includes: recreation (e.g. OHV use, hunting, wildlife viewing), watershed improvement (e.g. riparian area protection, erosion control structures/water bars), vegetation management, and gas/mineral extraction.

[1] Forest condition is a measure of the maturity and predominant size class of a tract of forest, and is directly related to the density of vegetation.
[2] Basal area is the cross-sectional area of a single stem (tree), including the bark, measured at breast height (4.5 feet above the ground); the cross-sectional area (at breast height) of a group of stems within an area (such as a stand), usually expressed in square feet per acre.

PROPOSED ACTION

Action 1 - Thinning

Thin approximately 81 acres in two areas (Table 1). Stands would be thinned to around 65 to 75 square feet of basal area using commercial timber harvest. Species of leave trees would include white and red oak, American beech, hickory, sugar maple, yellow-poplar, and blackgum. Chainsaw felling of small, unmerchantable trees would be required in areas not suitable for commercial harvest activities. Please refer to Map 2 for a summary of proposed actions and Table 2 for design criteria specific to the proposed actions.

Action 2 – Shelterwood with Reserves

Regenerate approximately 80 acres in two areas using two-aged silvicultural system[3] (Table 1). This action would be accomplished through a commercial timber harvest by removing approximately 75% of the overstory treess, leaving a residual stand basal area of 20-30 ft^2 per acre. Overstory trees selected for retention would be longer lived species, such as oak, hickory or beech, with good mast production and/or would possess beneficial wildlife qualities (e.g. den trees, roosting sites). Trees would be cut by a chainsaw or mechanical equipment and would be removed from the site using ground based equipment. In the dormant season following tree removal, an herbicide treatment of triclopyr ester would be applied to juvenile stems sprouting from cut stumps of aggressive species (e.g. red maple, sassafras). Subsequent chainsaw felling of small, unmerchantable trees would be required in areas not suitable for commercial harvest activities. No permanent roads would be constructed.

Action 3 – Crop Tree Release

Thin approximately 249 acres of young sapling hardwood stands (15- 20 years old) in seven areas (Table 1). Desirable trees would be identified to produce 20’ by 20’ spacing, and identification would be based on species, tree form, and crown dominance. This would result in approximately 110 high quality trees per acre in a free-to-grow state. Desirable trees would be released on three sides. Less desirable trees that would compete with or suppress the desired trees would be removed using chainsaws or handtools. Fallen trees would remain on site. All grapevines located within the proposed crop tree release stands would be cut, regardless of whether or not the grapevine is competing with a future crop tree.

Crop tree species priority for north-east facing moist slopes and bottoms would include American chestnut, butternut, white oak, northern red oak, sugar maple, ash, cucumbertree, buckeye, yellow-poplar, American beech, eastern hemlock, eastern white pine, other hardwoods, other conifers. Crop tree species priority for south-west facing dry slopes and top would include pitch pine, shortleaf pine, chestnut oak, white oak, hickories, northern red oak, black oak, eastern red cedar, scarlet oak, other hardwoods, other conifers. The following species would be considered reserve trees, and would not be cut: flowering dogwood, eastern redbud, black walnut, butternut (white walnut), American chestnut, shortleaf pine, pitch pine, eastern hemlock.

[3] Two-aged system – a planned series of treatments designed to maintain and regenerate a stand with two age classes.

Table 1 – Proposed Vegetation Management Activities

Unit #	Cmpt-Stand	Treatment	Acres
1	2802-36	Shelterwood with Reserves	40
2	2802-43/44	Rehabilitate existing opening	28
3	2802-34	Crop tree release	55
4	2803-08	Crop tree release	29
5	2803-05	Crop tree release	27
6	2803-04	Thinning	45
7	2805-02	Crop tree release	37
8	2805-07	Crop tree release	42
9	2805-12	Shelterwood with Reserves	40
10	2805-14	Thinning	36
11	2805-15	Crop tree release	24
13	2805-28	Crop tree release	35
		Total Acreage:	**438**

Table 2 – Design Criteria

Design Criteria	Action 1	Action 2	Action 3	Action 5
Leave trees should be ≥ 12 inches in diameter at breast height (DBH)	X	X		
Leave trees should be dominant or co-dominant;	X	X	X	
Leave trees should be vigorous; good seed-producers; possess well-formed full crowns; and be in middle rotation age	X	X		
Retain all shellbark, shagbark and red hickory trees ≥ 6" DBH	X	X	X	
Retain all butternut trees	X	X	X	
Retain all immediate roost trees[4] (for Indiana bat) ≥ 6" DBH	X	X	X	
Retain all eastern hemlocks along riparian areas & in drains unless already showing decline due to hemlock woolly adelgid (HWA) infestation	X	X	X	
When harvest occurs between April 1st and September 15th, pre- and post-implementation biological monitoring for Indiana bats must occur, in compliance with Biological Opinion on the 2004 Forest Plan (FWS #07-B-0580).	X	X		
Approximately 50 square-feet (ft^2) of basal area per acre would be retained in the Riparian Corridor Prescription area.	X	X		
Select crop trees on a 20' x 20' spacing and select only dominant or co-dominant trees			X	
Stems of felled trees are to be completely severed, within four inches of the ground, using a suitable cutting tool (e.g. chainsaw)	X	X	X	
All trees shall be felled so they do not lodge in any reserve trees or boundary trees	X	X	X	
Trees to be released should be of good form, free of forks, broken tops, or any other serious damage				

[4] Immediate roost tree – in Indiana bat management, a live tree of any DBN, having one or more characteristics that make it immediately available for Indiana bat roosting. Characteristics include sloughing bark, or cavities with openings to the outside, e.g. large splits or cracks in the bole, large broken limbs, or lightning scars.

Design Criteria	Action 1	Action 2	Action 3	Action 5
Stump sprouts should be selected as crop trees only if originating low on the stump at ground level. Preference should be given to single trees over multiple stump sprouts			X	
Retain flowering dogwood, eastern redbud, black walnut, American chestnut, shortleaf pine and pitch pine trees			X	
Wheeled or tracked equipment to be used within the stands should be washed prior to entering National Forest System lands to limit introduction of non-native invasive species during project activities.	X	X		X

Action 4 - Wildlife Ponds

Construct three wildlife ponds in forested areas adjacent to the proposed thinning and shelterwood areas (Table 2). New ponds would range in size from 1/10 to 1/4 acres, with a depth of two to four feet, and would be located on ridge top saddles conducive to water retention. Trees and vegetation within the location of the new ponds would be removed using chainsaw and hand tools. New ponds would be designed to function like natural ridge top ponds, and would be constructed with a dozer. No road construction would be required because the dozer will be guided around trees and/or large rocks to access worksites. New ponds would be round to oval in shape, and located in canopy gaps to avoid large trees wherever possible.

Table 2 – Proposed Ponds Actions

Compartment	Stand	Treatment	Acres
2802	36	Establish New Pond, Revegetate	0.1 - 0.25 ac.
2803	06	Establish New Pond, Revegetate	0.1 - 0.25 ac.
2805	15	Establish New Pond, Revegetate	0.1 - 0.25 ac.
		Total Acreage:	**≤ 2**

Action 5 - Road Maintenance

Perform light maintenance on approximately 8.41 miles of existing Forest Service roads accessing the proposed harvest sites (Table 3). Light maintenance would include (but not be limited to) re-grading, clearing ditches, and cleaning/repairing water control structures.

Table 3 – Proposed Road Work

Road Name	Treatment	Miles
FSR 1505	Re-grade, clear ditches, clean & repair water structures	2.01
FSR 1696	Re-grade, clear ditches, clean & repair water structure	4.78
FSR 1745	Re-grade, clear ditches, clean & repair water structure	1.62
	Total Mileage:	**8.41**

Action 6 - Revegetation:

Rehabilitate areas of exposed soil such as log landings, skid trails, and wildlife ponds. Such areas would require scarification followed by reseeding with a mixture of wild rye and/or winter wheat, partridge pea, desmodium and/or native lespedezas, and warm season grasses (big bluestem). Orchard grass would be utilized if steep slopes or erosion control is a concern. Some logging slash (tree tops, branches, etc.) would be scattered across exposed soil areas (skid roads, log landings).

PURPOSE AND NEED FOR ACTION

The project area is located within the South Red Bird landscape area, a 55,755-acre area on which Forest Service personnel conducted a variety of inventory and analyses to determine resource conditions, and develop projects based on the goals and objectives from the Forest Plan. Analysis at a landscape scale is a process used to characterize the human, aquatic, and terrestrial resources, and interactions within an area. The proposed actions contained in this project are a product of that analysis, and are designed to improve the health and vigor of forested communities, enhance terrestrial wildlife habitats, and provide renewable forest products

Thinning - Thinning these areas would address the following Forest Plan Goals & Objectives:

- ✓ *Objective 2.1.A - Within each stand, the relationship of basal area, number of trees, and average tree diameter is below the 80% stocking level, as shown in Figure 2-2 [Stocking charts for upland hardwood oak stands (Gingrich 1964)]* (Forest Plan, p. 2-10).
- ✓ *1.K-Goal 1 - Maintain a variety of habitat conditions in the area based on composition and structure* (Forest Plan, p.3-35);
- ✓ *1. K-Objective 1.D - Maintain five percent within each 5th level watershed in stands thinned to 60-70 BA* (Forest Plan, (p.3-35).
- ✓ *Goal 8 – Provide renewable products on a sustainable basis when such provision is compatible with Desired Future Conditions* (Forest Plan, p.2-15).

The two areas proposed for treatment contain >135 square feet of basal area of overstory, midstory and understory seedling/sapling sized trees. The proposed removal of approximately 30% of the existing overstory vegetation, while favoring oak, hickory and yellow-poplar for retention, would bring the areas below the 80% stocking level[5]. The proposed thinning would enhance the growth of the remaining trees and promote regeneration of seedlings. Thinned forest would also provide preferred habitat conditions for ovenbirds, a Management Indication species (MIS)[6], increase flight corridors for bats, and provide preferred hard mast forage for locally important game species such as white-tailed deer, elk, turkey and ruffed grouse.

Inventory data show these areas proposed for thinning to be classified as overstocked, a measure of density relative to diameter at breast height (DBH)[7] and height of the trees. These areas are dominated by yellow-poplar, white oak and red oak. Removal of a portion of trees from the midstory and overstory would provide additional space for crown growth and development of the residual trees, and would reduce stress and competition many of the trees are now experiencing due to crowded conditions. A reduction in competition would allow the residual trees in the area to be more resistant to insect and disease attacks, such as gypsy moth, emerald ash borer and oak decline. Following the loss of American chestnut trees early last century, oak has become an important forest species as a major producer of hard mast preferred by many wildlife species and for its aesthetic and commercial value. Thinning would also serve to establish and enhance oak regeneration and provide greater opportunity for the area to maintain a heavy oak component as

[5] Stocking – an indication of growing-space occupancy of live trees relative to a pre-established standard.
[6] Management Indicator Species (MIS) - a species whose condition can be used to assess the impacts of management actions on a particular area; a species whose population changes are believed to indicate the effects of management activities, and is monitored to track population numbers and habitat conditions, as a way of monitoring biodiversity.
[7] DBH is defined as the diameter of the stem of a tree measured from the uphill side of the ground to a height of 4.5'.

the older trees die off (or are removed at a later date in a regeneration harvest) and the current undergrowth matures to the canopy level. To initially establish oak seedlings, tree crowns need room for an increase in development and more sunlight to increase acorn production. In order to improve conditions for seed germination, the currently heavily shaded forest floor requires additional diffuse sunlight to increase temperatures in the litter and duff layers. Understory oak regeneration must attain a height of 4.5 feet, and be free of overtopping vegetation prior to the removal of the overstory in order to be competitive.

Shelterwood with Reserves – Implementing the two-aged silvicultural system of shelterwood with reserves (shelterwood) would address the following Forest Plan Goals & Objectives:

- ✓ *1.K-Goal 1 - Maintain a variety of habitat conditions in the area based on composition and structure" Forest Plan* (Forest Plan, p.3-35);
- ✓ *1.K-Objective 1.A - Maintain 5 to 6 percent within each 5th level watershed in the 0-10 age class, including the effects of catastrophic events* (Forest Plan, p.3-35).
- ✓ *Goal 8 – Provide renewable products on a sustainable basis when such provision is compatible with Desired Future Conditions* (Forest Plan, p.2-15).

The South Red Bird IRMS analysis revealed a need for an additional 485-908 acres of forest in the 0-10 year age class within the Red Bird River watershed, a 5th level watershed containing the project area. Conducting a shelterwood harvest would help develop a two-aged young forest, characterized by a limited overstory layer (approximately 10-20 square feet of basal area per acre) with dense understory layer of seedlings, saplings, trees and shrubs. Functional young forest is limited in the project area, and would provide preferred habitat condition for MIS species such as Eastern towhee, yellow-breasted chat, and provide browse habitat for white-tailed deer; for conservation species such as the Least Flycatcher, sensitive species such as Diana fritillary; and, game species such as elk and ruffed grouse.

Inventory data show these areas proposed for shelterwood harvest to be overstocked. The two areas proposed for treatment are 110-120 years in age, and contain approximately 140 square feet of basal area of all sized class trees. These areas are comprised of white oak, red oak, yellow-poplar and hickory. Removal of the majority of the overstory using the shelterwood method, the residual trees (measuring approximately 20-30 square feet of basal area per acre) would enhance seed production for future regeneration and foster growth of advanced regeneration already present by providing shade and protection.

The proposed shelterwood harvest would create a temporary forest opening, as described above, and provide a seed source to generate new growth in the area. Due to the rich growing environment in these areas and the ability of most local tree species to sprout from cut stumps, these areas would ultimately grow back into a forested condition, and would not be maintained as openings. Most hardwood trees species native to Kentucky will sprout new growth from a cut stump, drawing energy and nutrients from the extensive root system still present and viable. When the forest floor receives an influx of sunlight following a disturbance (e.g. wind event, harvest), some woody and herbaceous species exhibit rapid growth in order to better compete for the newly available resources. As a result, the removal of trees creates an "open playing field" for new stems to develop, and natural regeneration continues. Some species (red maple, yellow-poplar, sassafras) tend to grow more quickly, and often dominate a regenerating area, to the exclusion of the variety normally found in Kentucky's forests. In order to give a variety of tree species the opportunity to establish and mature, the herbicide treatment would be selectively

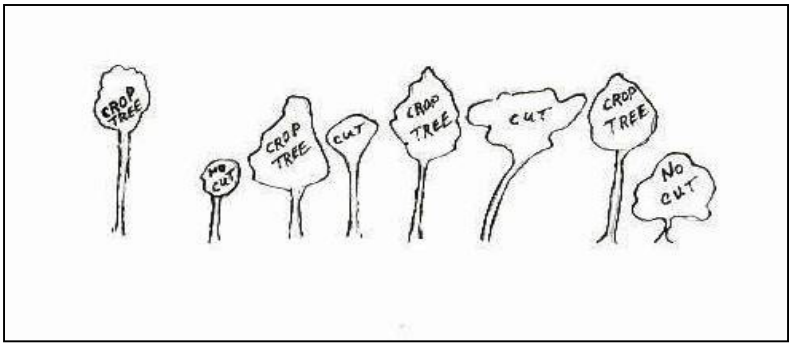
applied to quick-growing, highly competitive species such as red maple and yellow-poplar. Following the completion of harvest activities, areas proposed for chemical site preparation would be re-evaluated to determine the localized need for herbicide treatment.

Crop Tree Release – Implementing a crop tree release would address the following Forest Plan Goals & Objectives:

- ✓ *1.K-Goal 1 - Maintain a variety of habitat conditions in the area based on composition and structure* (Forest Plan, p.3-35);
- ✓ *Goal 2.1 - Increase the amount of forested land where stand growth equals or exceeds loss; improve stand structure and function such that stands are more resistant to catastrophic loss (prevention)* (Forest Plan, p. 2-10).
- ✓ *Goal 8.3 - Select leave trees first to accomplish habitat objectives, then to improve the stand's survivability and potential timber value* (Forest Plan, p. 2-15).

These relatively young stands (approximately 15-20 years old) are currently growing in a crowded condition. Inventory data indicate there are approximately 1,000 trees per acre. Because they are crowded, individual trees don't have enough room to "spread out" and develop large healthy crowns. Ideally, at this time in the life of a young stand there should be only around 110 free-to-grow trees. This condition would be achieved by removing trees crowding out the more desirable trees, which releases the desirable trees to grow unimpeded. Thinning a stand using this crop tree release method does not remove all of the "extra" trees, but rather the ones crowding the desirable trees (Figure 1).

Figure 1 – Crop Tree Release diagram



During the crop tree release operation, poorly formed (forked) trees and those that have been damaged or diseased would be selected for removal first. Some desirable species, such as oak, are slow growing and frequently over-topped by other faster growing species. Therefore, slow growing desirable species would benefit by removing some of the other trees that overtop or crowd them. Hickories and oaks would receive high priority in order to retain those favored by wildlife.

These stands are at a stage when they will most benefit from the thinning. They are old enough that the stronger, more desirable trees are becoming evident (aiding in the selection of the free-to-grow trees), but they are young enough to be able to quickly grow into the extra space provided by the thinning.

Ponds – Building upland ponds would address the following Forest Plan Objectives:

- ✓ *Objective 1.2.A. Establish water sources adjacent to mature forest and/or woods road corridors* (Forest Plan, p.2-7).

Upland water sources are used by a variety of wildlife, such as the endangered Indiana bat and other bat species; game species such as white-tailed deer, elk and wild turkey; and more common species such as reptiles and amphibians as well as aquatic insects. Due to the limited availability of upland water sources, many amphibians deposit their eggs in water-filled ruts in roads or ditches, and then have small chance for development due to traffic. The construction of three new ponds would provide additional water sources for wildlife on ridgetops, and would benefit game and non-game species, as well as the endangered Indiana bat.

Road Maintenance and Revegetation – Performing road maintenance on existing Forest Service roads would be completed to ensure easy access to the project area and reduce the potential for sedimentation often generated by poorly maintained roads. Revegetation would also serve the dual purpose of minimizing erosion in cleared areas (log landings, skid trails, wildlife ponds) and to establish vegetation to provide additional forage and cover for wildlife.

RESPONSIBLE OFFICIAL and DECISION TO BE MADE

The responsible official for this decision will be the Forest Supervisor of the Daniel Boone National Forest. The Forest Supervisor will decide whether or not to implement the proposed action as described; an alternative to the proposal, measures to minimize impacts, and whether the action is consistent with the Forest Plan.

SCOPING AND PUBLIC INVOLVEMENT

A review of the management direction for the area in the Forest Plan, review of the National Forest Management Act, and consultations with Forest Service and other agency resource specialist, and the public, resulted in the proposal.

Public involvement began during analysis of the South Red Bird landscape area with an open house to engage the public in the assessment process and provide for collaborative dialogue regarding key resources. The proposed action was first published in the April 2009 issue of the quarterly *Schedule of Proposed Actions*, and will appear in each issue until a decision is made. Flyers announcing the proposal have been posted in the Big Creek, Essie and Goose Rock, KY Post Offices and local convenience stores.

Additional information can be found on the Forest Service web site at:
http://www.fs.fed.us/r8/boone/planning/project/

HOW YOU CAN HELP?

You can help in the planning process by sharing any concerns or information you may have about this area or the proposal. The Forest Service will use your comments to help determine the appropriate scope of environmental analysis to conduct. Comments submitted will become part of the public record.

Comments received in response to this solicitation, including the names and addresses of those who comment, will be considered part of the public record and will be available for public inspection. Comments submitted anonymously will be accepted and considered. Additionally, pursuant to 7 CFR1.27 (d), any person may request that a submission be withheld from the public record by showing how the Freedom of Information Act permits such confidentiality. Persons requesting such confidentiality should be aware that confidentiality is granted in only very limited circumstances. The Forest Service will inform the requester of its decision regarding a request for confidentiality. Where the request is denied, the submission will be returned, and the requester notified that the comments may be resubmitted with or without name and address.

HOW TO SUBMIT COMMENTS

Comments are due by July 16, 2010. Individuals or organizations wishing to comment must provide the following information as part of their comments:

i. Name and address.
ii. Title of the proposed action. (Spring Creek Vegetation Management)
iii. Site -specific comments on the proposed action, along with supporting reasons that the Responsible Official should consider in reaching a decision.
iv. Signature or other verification of identity upon request; identification of the individual or organization who authored the comment(s) is necessary for appeal eligibility.

Written comments can be mailed to: Redbird District Ranger
Daniel Boone National Forest
91 Peabody Road
Big Creek, Kentucky 40914

Written comments can be sent by facsimile to: (606) 598-3648

Electronic comments should be in a common digital format and sent to:

comments-southern-daniel-boone-redbird@fs.fed.us

Oral or hand-delivered comments must be received at the Redbird Ranger Station office during normal business hours. Normal business hours for the Ranger Station in Big Creek, Kentucky are from 8:00 a.m. to 4:30 p.m. For submitting oral comments by telephone, call (606) 598-2192 and identify the purpose of your call. The receptionist will connect you with someone who will document your comments.

ADDITIONAL INFORMATION

Contact Elizabeth Robinson, Project Team Leader at the above address, or by email at elrobinson@fs.fed.us, or by calling (606) 598-2192.

Sincerely,

/s/ William M. Rock

WILLIAM M. ROCK
Acting District Ranger

ATTACHMENTS (2)